(19) World Intellectual Property Organization International Bureau



) | TODAYA KANTON ON ANTAN KANTA BANTA BANTA BANTA BANTA BANTA BANTA BANTA BANTA BANTA BANTAN BANTAN BANTAN BA

(43) International Publication Date 12 August 2004 (12.08.2004)

(10) International Publication Number WO 2004/066928 A3

- (51) International Patent Classification⁷: A61K 49/00, 39/00, 39/02, 39/04, C12Q 1/00, C12P 1/00, C12N 1/00
- (21) International Application Number:

PCT/US2004/001773

- (22) International Filing Date: 23 January 2004 (23.01.2004)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/442,631

24 January 2003 (24.01.2003) US

- (71) Applicant (for all designated States except US): ALBERT EINSTEIN COLLEGE OF MEDICINE OF YESHIVA UNIVERSITY [US/US]; 1300 Morris Park Avenue, Bronx, NY 10461 (US).
- (72) Inventor: BARDAROV, Stoyan (deceased).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): JACOBS, William, R., Jr. [US/US]; 47 Iden Avenue, Pelham, NY 10016 (US). HSU, Tsungda [—/US]; 1737 Haight Avenue, Bronx, NY 10461 (US). SAMBANDAMURTHY, Vasan [US/US]; 1935 Eastchester Road, Apt. 25G, Bronx, NY 10461 (US). MORRIS, Sheldon [US/US]; 11025 Cedar Lane, Beltsville, MD 20705 (US).
- (74) Agents: ARNOLD, Craig, J. et al.; Amster, Rothstein & Ebenstein LLP, 90 Park Avenue, New York, NY 10016 (US).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 5 January 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: USE OF MYCOBACTERIAL VACCINES IN CD4⁺ OR CD8⁺ LYMPHOCYTE-DEFICIENT MAMMALS

(57) Abstract: Methods of treating a mammal that is deficient in CD4⁺ and/or CD8⁺ lymphocytes are provided. The methods comprise inoculating the mammal with an attenuated mycobacterium in the M. tuberculosis complex. In these methods, the mycobacterium comprises two deletions, wherein a virulent mycobacterium in the M. tuberculosis complex having either deletion exhibits attenuated virulence. Use of these mycobacteria for the manufacture of a medicament for the treatment of mammals deficient in CD4⁺ and/or CD8⁺ lymphocytes is also provided.

